Explosion-proof telephone

ResistTel MB

Operating instructions

FUNKE+HUSTER·FERNSIG

Foreword

Our explosion-proof, weatherpoof phone offers precision, comfort, extended service life and reliability. It is programmable and it can withstand harsh environmental conditions. The phone can be used under severe conditions including seawater, high humidity, dust and it withstands strong mechanical shock in connection with explosion protection. It is fitted with an indestructible keypad made of V4A steel and an extremely robust body made of shock and impact-resistant compression moulded plastic. All components used for making this phone are resistant against lye and lubricants. The 21-part keypad optimised for "use with gloves" and made of V4A steel is easy to operate and thus meets all requirements for a modern and reliable communications device. The ExResistTel MB phone offers a reliable communication channel when connected to the public network or to PBX systems.

Table of contents

General operating conditions 5
Device Overview 6
Keyboard 9
Packaging Contents 9
Explosion Protection - Device Description 10
Explosion Protection - Device Construction 11
Explosion Protection - Indicators 14
Explosion Protection - Identification 15
Assembly and Installation 16
Connection Plan 17
Loop Bracket 17
Hole Pattern 18
Commissioning 18
Maintenance 18
Receiver Operation 19
Open listening 19
Hands free 19
Working with the headset 20
Operation 21
- Receiving calls 21
- Call somebody 21
- Redial 21
- Execute queries 21
- Change telephone configuration 22
- Signal tones 22

Configuration 23
- Set ring tone volume 23
- Select ring tone melody 23
- Set receiver volume 23
- Set speaker volume for speakers 23
- Set speaker volume for hands free 23
- Set headset volume 23
- Save or delete telephone numbers for speed dialling buttons 24
- Determine dialling behaviour 24
- Save or delete line access code 24
- Determine duration of the break after dialling the line access code 24
- Determine duration of the loop current disruption (flash duration) 25
- Enable/disable change block 25
- Enter PIN 25
- Enable/disable external speaker 26
- Restore state of delivery 26

State of delivery 27
Technical data 28

Directives and guidelines 31
Service 32
Care and maintenance 32
Disposal 32
Warning and safety notes 32
CE certificate 34
EC Declaration of Conformity 35

General operating conditions

1. The ExResistTel MB weatherproof phone can be connected to the telephone lines of analogue exchanges.
2. The handset is fitted with a stray field coil for connecting hearing aid devices. Persons wearing a hearing aid device with an inductive receiver can directly receive the signal of the earphone.
3. The optional external speaker can be used in ringer, open listening and hands-free modes. The volume of the internal speaker is reduced when the external speaker is turned on.
4. The phone has a receiver mount with a reed contact hook switch. The handset must be placed back on the mount to end the call. A conversation is ended and a new call is started by pressing the disconnect button on the keypad (see page 9).
5. If the you do not make a selection within 2 minutes, the exchange can cut off the power supply. Then you will stop hearing the dial tone. In this case, please place back the handset, wait for 2 seconds and lift the handset again.
6. An acknowledgement tone confirms that the settings have been stored.
7. When you receive a call, the ExResistTel MB phone rings with the selected volume.
8. Changing the settings can be prevented by setting a PIN number. Forgetting the PIN number is similar to losing a key. If you forgot the PIN number, please contact our technical support service.
9. There is a warranty period of 36 months from the date of purchase. In case of any problems please contact our technical support service in Germany, Mülheim an der Ruhr:

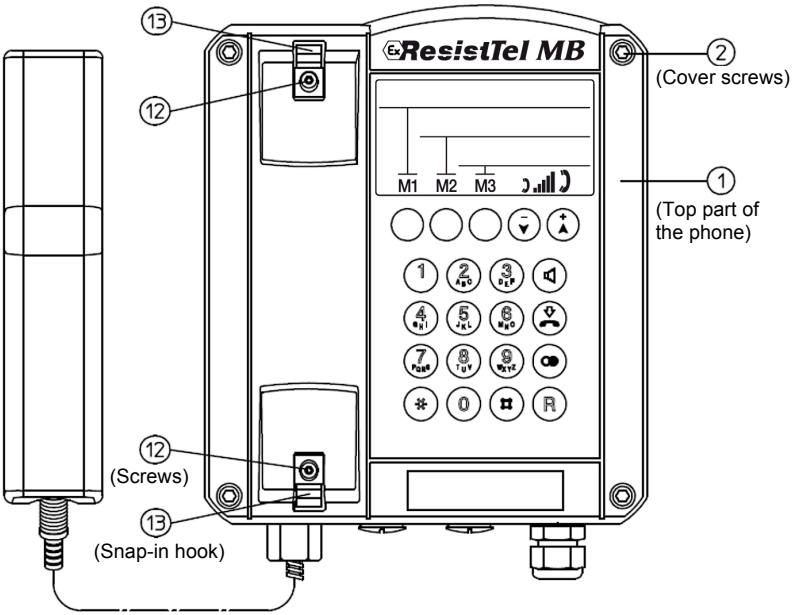
   Phone number: 0208 82 68 0 · Fax: 0208 82 68 286 · E-mail: info@fhf.de
   Please use the country code if calling from outside Germany:
   Phone number: +49 208 82 68 0 · Fax: +49 208 82 68 286

In case of issues which cannot be solved by phone, please send the complete device with a copy of the sales receipt to the following address:

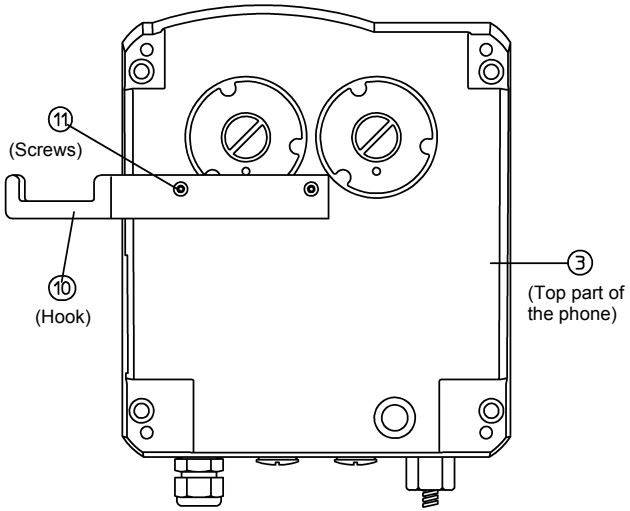
FHF
Support ExResistTel MB
Gewerbeallee 15-19
D-45478 Mülheim an der Ruhr

If no errors are found during the inspection, we shall issue an invoice for the processing fee.

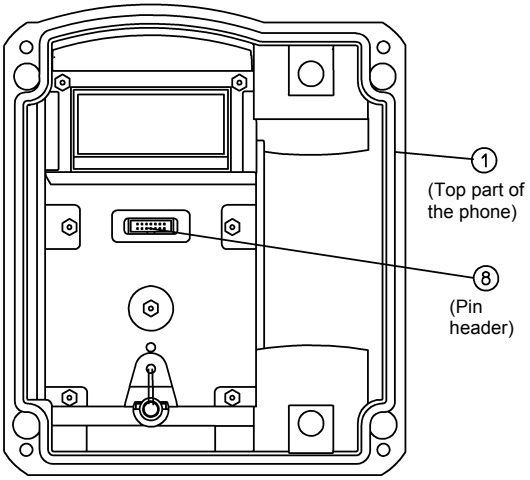
Overview of the device



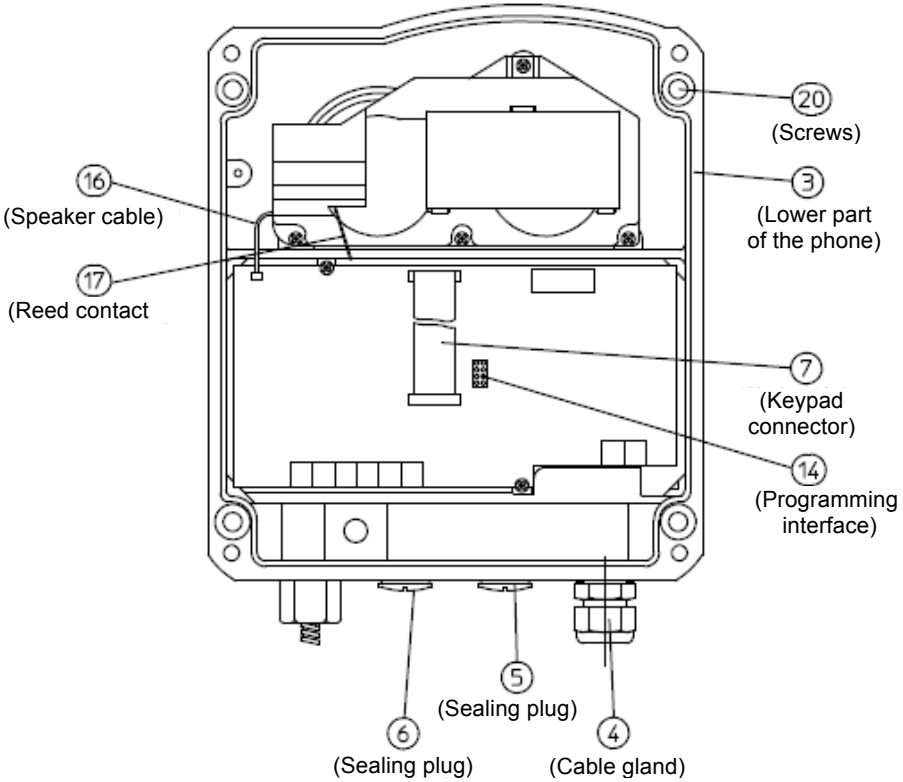
Exterior view of the lower part of the phone



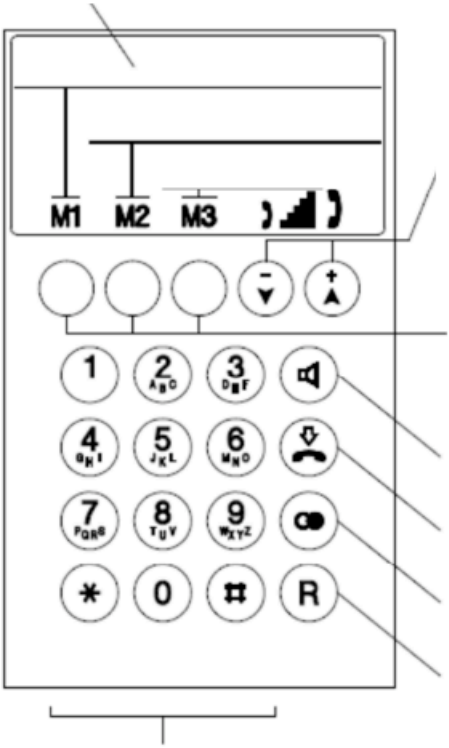
Interior view of the upper part of the phone



Interior view of the lower part of the phone



Label field



Volume settings buttons
for setting the volume of the handset, speaker (hands-free and open conversation)

Speed dialling

Loudspeaker

Disconnect

Redial button

Second call

Numeric keys

Package contents

The package contains:
- Telephones ExResistTel MB
- Operating manual
- 2 sticky label panels
- MB sticker

Explosion protection - device description

The ExResistTel MB serves for making calls within operating facilities in danger of explosion in the zones: Zone 1, Zone 2, Zone 21 and Zone 22.

The telephone is to be realized in the following ignition protection types:

II 2G Ex e mb [ib] IIC T5 Gb	Ex e mb [ib] IIC T5 Gb
II 2D Ex tb [ib] IIIC T100°C Db	Ex tb [ib] IIIC T100°C Db
-25°C ≤ T_a ≤ 60°C	-25°C ≤ T_a ≤ 60°C
II 2G Ex e mb [ib] IIC T6 Gb	Ex e mb [ib] IIC T6 Gb
II 2D Ex tb [ib] IIIC T80°C Db	Ex tb [ib] IIIC T80°C Db
-25°C ≤ T_a ≤ 40°C	-25°C ≤ T_a ≤ 40°C
DMT 02 ATEX E 183	IECEx BVS 11.0033

The ExResistTel MB telephone is designated to analogue telephone networks.

The non-secure voltage of the telephone network is led into increased security on the clamps 13 and 14 (A, B). In the call state, this voltage is switched through to the clamps 15 and 16 (Bell shunt1, Bell shunt) with increased security. The clamps 15 and 16 (Bell shunt1, Bell shunt) are designated for the connection of passive loads, e.g. a passive external, explosion protected second alarm.

Furthermore, from the non-secure voltage of the analogue telephone network:

- a secure listener current with clamps within the telephone casing, for the receiver connected with the telephone casing, as well as
- secure circuits with clamps within the telephone casing to connect a secure headset or optionally a secure second receiver, as well as
- a secure circuit with clamps within the telephone casing for the connection to a secure speaker.

The headset, second receiver, external speaker and external secondary alarm accessories are not a component of the ExResistTel MB telephone, but rather can be connected as an option.

The ExResistTel MB telephone has an unpainted casing made of electrical-static, conductive press plant material and a stainless steel keyboard.

The casing consists of a box shaped lower part, in which a tub is integrated to hold the electronic system, as well as a curved cover with a keyboard.
The cover is pressed under the medium layer of a surrounding seal with four screws on the casing lower part and forms the non-secure and secure connection space. The electronic system conductor board is located in the tub from the casing lower part, which is completely embedded in the compound.

Non-secure connection clamps with increased security:

From the casting, a 4-pin connection clamp series (See connection plan on page 18) comes out in increased security, to connect the non-secure telephone network (A, B), clamp 13 and 14 as well as for the connection for an optional, external, explosion protected second alarm (Bell shunt1, Bell shunt), clamp 15 an 16.

Secure connection clamps:

From the casting, a 12-pin, secure connection clamp series (see connection plan on page 18) comes out to connect the receiver integrated in the telephone casing, clamps 1 to 4, as well as the secure accessories, clamps 5 to 12.
The clamps 7 and 8 are intended for the connection of dynamic earphones, as used in second receiver and headsets. This output is therefore optionally used to connect a second receive or a headset, this means second receivers and headsets cannot be connected simultaneously as accessories.

Clamp	Note	Usage
1	Dynamic earphone connection 1	Earphone ear piece
2	Dynamic earphone connection 2	
3	Electret microphone connection (+)	Earpiece microphone
4	Electret microphone connection (-)	
5	Electret microphone connection (+)	Headset microphone
6	Electret microphone connection (-)	
7	Dynamic earphone connection 1	Headset or second receiver earphone
8	Dynamic earphone connection 2	
9	Bridges between the clamps 9 and 10 recognize the telephone as a connected headset	Headset recognition
10		
11	Dynamic volume connection 1	External speaker
12	Dynamic speaker connection 2	

To connect the accessory, the blank plugs installed in the telephone casing are to be exchanged through suitable explosion protected cable and line guides (M20x1.5).

Before the connection of the secure accessories, an evaluation of the security should be executed by the raiser corresponding with the PTB report "interconnection of non-linear and linear security circuits", PTB-ThEx-10, November 1999 (ISBN 3-89701-440-8), provided no system certificate is provided for the designated interconnection.

The technical data for the evaluation of the security should be taken from the section "explosion protection parameters".
Further information see EN60079-14 "electrical operating equipment for gas explosion endangered areas" as well as EN50281-1-1 "electrical operating equipment for usage in areas with flammable dust". When operating the device in explosion dangerous areas with flammable dust, the operator must observe EN50281-1-2 (IEC61241-1-2).

In order to hang up the secure accessories of the second receiver or headset, a metal clamp is designated, which is only delivered together with the headset. In order to mount the metal clamp to the telephone, two screw sockets are placed in the ground of the casing. The metal clamp has corresponding bores, which allows for a mounting on the bottom of the casing through counter sunk bolts (see device overview on page 7). Thus, the raiser must first mount this on the bottom of the casing when using the metal clamp. After this, the wall assembly occurs.

Secure program interface

From the cast, an 8-pin, secure connecting plug comes out (**14**) (see device overview on page 8). It is only used by the manufacturer for programming purposes. The connecting plug is to be left blank. Programming through the raiser is not permissible.

Secure strand connection to the installed speaker

From the casting, a secure 2-pin strand line (**16**) (see device overview on page 8), guided to the installed speaker. It is soldered under casting and on the speaker.

Secure strand connection to the reed contact

From the casting, a secure 2-pin strand line (**17**) (see device overview on page 8) led to a board, on which a magnet contact (reed contact) is found. It is soldered under casting and on the conductor board with the magnet contact.

Secure keyboard connection

From the casting, a secure 14-pin flat band line with connector is guided through (**7**) (see device overview on page
This connector should be placed on the 14 pin pin in the casing cover before the device is screwed down.

1. Non-secure power circuits

1.1 Telephone network
(Clamps A/B no.: 13 – 14)

Maximum input voltage U_m (call voltage)	AC 90	V
Permissible frequency range	16...54	Hz
or		
Maximum input voltage U_m (supply voltage)	DC 66	V
Maximum input rated current	100	mA
Maximum input short circuit current I_K	35	A

(In the input of this device is a fuse
with a disconnect threshold of 35 A.)

1.2 External second alarm: only for the connection to passive conductors
(Clamps Bell shunt1, Bell shunt no.: 15 –16)

Maximum call voltage	AC 90	V
Frequency range	16...54	Hz
or		
Maximum supply voltage	DC 66	V

2. Secured Circuits

2.1 Headset (microphone)
(Clamp pair HSM no.: 5 – 6)

Maximum	output voltage	U_o	17	V
Maximum	output current	I_o	90	mA
Maximum	output rating	P_o	80	mW
Maximum	external capacity	C_o	375	nF
Maximum	external inductance	L_o	1,2	mH

2.2 Headset (earphone) or second receiver
(Clamp pair HSR No.: 7 – 8)

Maximum	output voltage	U_o	17	V
Maximum	output current	I_o	110	mA
Maximum	output rating	P_o	190	mW
Maximum	external capacity	C_o	375	nF
Maximum	external inductance	L_o	1,2	mH

2.3 Headset (recognition)
(Clamp pair HSS No.: 9 – 10)

Maximum	output voltage	U_o	17	V
Maximum	output current	I_o	8	mA
Maximum	output rating	P_o	33	mW
Maximum	external capacity	C_o	375	nF
Maximum	external inductance	L_o	100	mH

2.4 External speaker
(Clamp pair SPK No.: 11 – 12)

Maximum	output voltage	U_o	6,6	V
Maximum	output current	I_o	250	mA
Maximum	output rating	P_o	370	mW
Maximum	external capacity	C_o	22	µF
Maximum	external inductance	L_o	0,3	mH

2.5 All secure output circuits have a linear output response curve.

3. Ambient temperature range

-25°C < T_a < 60°C for the temperature class T

-25°C < T_a < 40°C for the temperature class T

Ex e mb [ib] IIC T5 Gb
Ex tb [ib] IIIC T100°C Db
-25°C≤Ta≤T60°C
Ex e mb [ib] IIC T Gb
Ex tb [ib] IIIC T80°C Db
-25°C≤Ta≤T40°C

Explosion protection identification

www.fhf.de
Made in Germany
Funke+Huster Fernsig D - 45478 Mülheim
ExResistTel ®
II 2G Ex e mb [ib] IIC T5 Gb
II 2D Ex tb [ib] IIIC T100°C Db
-25°C≤Ta≤60°C
II 2G Ex e mb [ib] IIC T6 Gb
II 2D Ex tb [ib] IIIC T80°C Db
-25°C≤Ta≤40°C
Ex e mb [ib] IIC T5 Gb
Ex tb [ib] IIIC T100°C Db
-25°C≤Ta≤60°C
Ex e mb [ib] IIC T6 Gb
Ex tb [ib] IIIC T80°C Db
-25°C≤Ta≤40°C
0158
DMT 02 ATEX E 183 IECEx BVS 11.0033
F-No. ..... Insp. ..... Ik 35A IP66 IK09
Art.-No. ..... Um = AC 90V / Um = DC 66V
NACH DEM ABSCHALTEN 2 MINUTEN WARTEN VOR DEM ÖFFNEN
AFTER DE-ENERGIZING; DELAY 2 MINUTES BEFORE OPENING

Figure identification plate
Telephone type ExResistTel MB

The device can be installed only on a solid and vertical wall. Loosen the screws of the cover (**2**) (see the overview of the device on page 6 to 8) and take off the top part of the phone (**1**). When using the optional accessories: headset or second headset, mount the hook (**10**) with two screws (**11**) on the rear side of the lower part of the phone (In case of the above accessories, the hook and the screws and also in case of all optional accessories the cable gland is included in the respective package). Insert four screws with a head diameter of 10 to 13 cm in the opening (**20**) and mount the lower part of the phone (**3**) on the wall or a panel.

Insert the phone wire through the cable gland (**4**) and connect it to the clamps 13 and 14 (A, B) according to the wiring plan. Only use wires with an outer diameter of 5 to 9 mm, the IP66 rating of the device cannot be otherwise guaranteed.

Connecting the secondary sounder (for W conductor) (optional accessory)

Remove the sealing plug (**5**) and screw in the M20x1.5 cable gland completely. Insert the wire of the secondary sounder through the cable gland and connect it to the clamps 15 and 16 (Bell shunt 1, Bell shunt) according to the wiring plan. Only use wires with an outer diameter of 5 to 9 mm, the IP66 rating of the device cannot be otherwise guaranteed.

Connecting the speaker (optional accessory)

Remove the sealing plug (**6**) and screw in the M20x1.5 cable gland completely. Insert the wire of the speaker through the cable gland and connect it to the clamps 11 and 12 (SPK+, SPK-) according to the wiring plan. Only use wires with an outer diameter of 5 to 9 mm, the IP66 rating of the device cannot be otherwise guaranteed.

Connecting the headset (optional accessory)

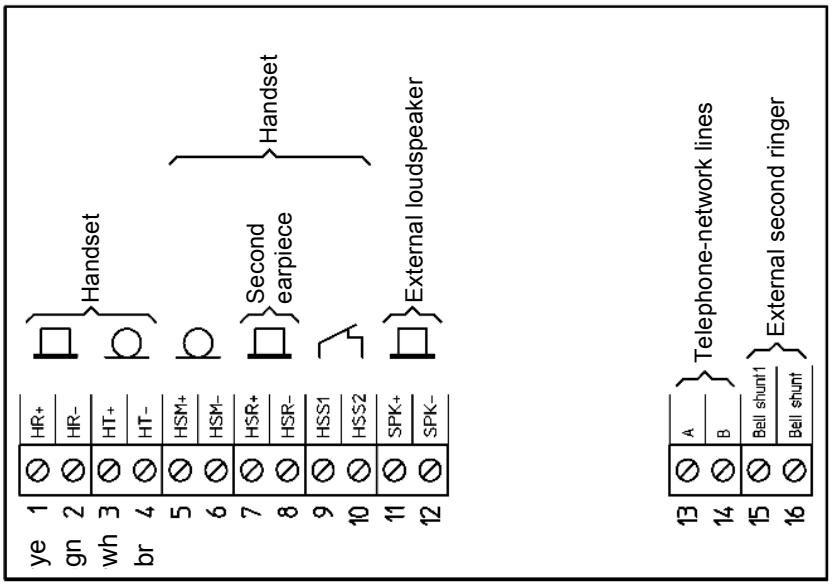
Remove the sealing plug (**6**) and screw in the M20x1.5 cable gland completely. Insert the cable with the headset socket (included in the package of the FHF headset) through the cable gland and connect it to clamps 5 to 10 (HSM+, HSM-, HSR+, HSR-, HSS1, HSS2) according to the wiring plan. Only use the cable included in the package of the headset, because the IP66 rating of the device cannot be guaranteed.

Connecting the second headset (optional accessory)

Remove the sealing plug (**6**) and screw in the M20x1.5 cable gland completely. Insert the wire of the second headset through the cable gland and connect it to the clamps 7 and 8 (HSR+, HSR-) according to the wiring plan.

Check the correct position of the cover seal prior to assembly. Connect the ribbon cable with the connector (**7**) to the pin header (**8**) in the upper part of the device. Mount the upper part of the phone and fasten it with four cover screws (**2**) to the lower part of the phone.
When optional accessories are removed, close the openings created with the EEx e II certified sealing plugs.

Wiring diagram

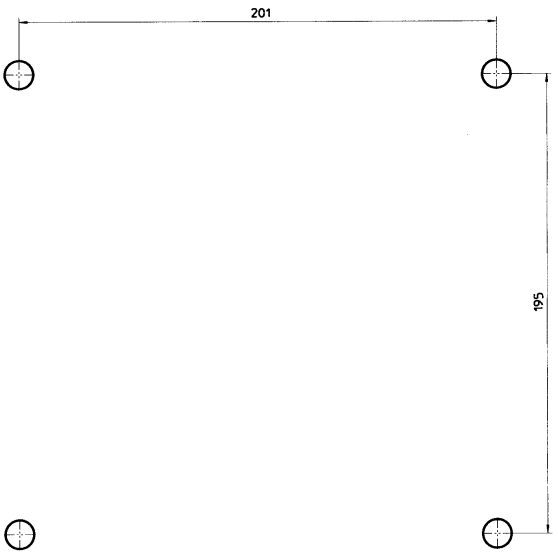


Support hook

The support force for holding the handset is infinitely adjustable.
Loosen the screws (**12**) and slide the snap-in hook (**13**). If you slide the snap-in hook together, the support force increases, if you slide them apart, the force decreases. Tighten the screws again.

Hole pattern

Please use the following dimensions (in millimetre) for making a drilling template:



The diameter of the hole depends on the screws used (max. screw diameter 8 mm) and the type of the surface (steel, wood, concrete, sheetrock etc.) and please select accordingly.

Putting into service

The ExResistTel MB phone is ready for operation immediately after connecting it to the network.

Maintenance

The ExResistTel MB phone does not contain any components requiring maintenance.

Handset operation

If you lift the handset, the phone starts in handset mode. You can modify the handset volume for the conversation using the ⊖ and ⊕ buttons. For a permanent modification of the handset volume, please access the configuration of the phone (see page 24). You can switch to open listening with the 🔊 button. Hold down the 🔊 button and put the handset back to switch to hands-free mode.

Open listening

You can modify the volume for open listening using the ⊖ and ⊕ buttons. For a permanent modification of the speaker volume, please access the configuration of the phone (see page 24). The handset volume cannot be modified in open listening mode. You can switch to handset mode with the 🔊 button. Hold down the 🔊 button and put the handset back to switch to hands-free mode.

Hands-free mode

If you turn on the ExResistTel MB phone with the 🔊 button, it starts up in hands-free mode. You can modify the speaker volume of the conversation using the ⊖ and ⊕ buttons. For a permanent modification of the speaker volume, please access the configuration of the phone (see page 24). You can end the conversation with the 🔊 button. If you lift the handset, the phone switches to handset mode.

Using the headset

If the headset is connected, the phone switches from open conversation to headset mode. Open conversation is therefore not possible with the headset. If you turn on the ExResistTel MB phone with the button, it starts up in headset mode. If you lift the handset in the headset mode, the handset is given priority. This means that you can listen and speak using the handset, and you can only listen with the headset.
Compare the operation without and with the headset connected:

Operation without the headset	Operation with the headset
Handset operation	**Handset operation with the headset** - Handset is used for speaking and listening - headset is used for listening only - Speaker is turned off
Open listening	**Open listening with the headset** - Handset is used for speaking and listening - headset is used for listening only - Speaker is turned on
Hands-free mode	**Headset mode** - Handset is placed back - headset is used for speaking and listening - Speaker is turned off

You can modify the headset volume of the conversation using the and buttons. For a permanent modification of the headset volume, please access the configuration of the phone (see page 24). You can end the conversation with the button.
You can specify the operation of the ExResistTel MB phone after disconnecting the headset in the configuration.

Receiving calls

Calls received are indicated with acoustic signals of the built-in speaker. If the external speaker is connected and activated, the external speaker is used for acoustic signalling. Lift the handset to establish the connection with the caller. For activating the hands-free mode or headset mode press the speaker button instead.

Making a call

Lift the handset, and you can hear the dial tone (dial ready tone) of the public network or of the PBX network respectively.
Press the speed dialling button or the redial button or use the numeric keys to select the phone number of the other party automatically or manually.
Instead of lifting the handset, you can press the speaker button to make a call in open conversation or headset mode.
For selecting a new phone number, you do not need to place the handset back, you can press the disconnect button. The present conversation is ended and you can hear the dial tone to select a new phone number.

Redialling

If you press the redial button, the phone selects the last phone number dialled after lifting the handset or pressing the speaker button.

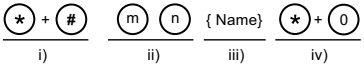
Making a second call

During the conversation, you can disconnect and place the present conversation on hold to make a second call with a different party. Press the second call button and you will hear the dial tone. Dial the phone number of the second party. After ending the second call, you can return to the first call on hold by pressing the second call button again. You can also connect the two parties of the first and second call with each other: Place the handset back or press the speaker button in hands-free or headset mode.

Making a second call is an additional service of the network operator or of the PBX you use.

Changing the phone settings

The phone is fitted with a programmable memory which permanently stores the settings like dialled numbers, volume settings, time data etc. These settings are adjustable to ensure that the phone can be adapted to diverse operating conditions.
All adjustable settings of the phone configuration are presented in the Configuration section below.



v) Name: = 0 | 1 | 2

i) All modifications are made by pressing the * and # buttons at the same time.
The setting is selected for modification with the ii) buttons, and the settings range if shown by the symbolic name iii). The additional row v) contains the list of buttons which can be used here. If you press iv) twice then the configuration is ended and the modified settings are stored in the memory.
The symbolic name is enclosed with { } brackets, and 0, 1 or several buttons of the list v) can be pressed, otherwise the user can press exactly one button.

Signal tones

_____	Acknowledgement sound
_ _ _ _	Error sound
▬▬	PIN-Ping, Request to introduce the PIN number
_	Indication sound, selected speed dialling memory is not empty

Setting the ringer volume

(*)+(#) (1)(0) { Volume } (*)+(0)
Volume:= (1)|(2)|(3)|(4)|(5)|(6)|(7)

Factory setting: 7
Settings range: 1 – 6

Selecting a ringtone

(*)+(#) (1)(1) { Tune } (*)+(0)
Tune:= (0)|(1)|(2)|(3)|(4)|(5)|(6)|(7)|(8)|(9)

Factory setting: 0
Selection range: 0 - 9

Setting the handset volume

(*)+(#) (2)(0) { Handset volume } (*)+(0)
Handset volume:= (1)|(2)|(3)|(4)|(5)|(6)|(7)

Factory setting: 1
Settings range: 1 - 7

Setting the speaker volume for open listening

(*)+(#) (2)(2) { Open listening volume } (*)+(0)
Open listening volume:= (1)|(2)|(3)|(4)|(5)|(6)|(7)

Factory setting: 5
Settings range: 1-7

Setting the volume for hands-free operation

(*)+(#) (2)(4) { Hands-free volume } (*)+(0)
Hands-free volume:= (1)|(2)|(3)|(4)|(5)|(6)|(7)

Factory setting: 5
Settings range: 1 - 7

Setting the headset volume

(*)+(#) (2)(6) { Headset volume } (*)+(0)
Headset volume:= (1)|(2)|(3)|(4)|(5)|(6)|(7)

Factory setting: 3
Settings range: 1 - 7

Setting or deleting phone numbers for speed dialling

⊛+# Speed dial button { Speed dial no. } ⊛+0
Speed dial button:= M1|M2|M3|⊛+M1|⊛+M2|⊛+M3
Speed dial number:= 0|1|2|3|4|5|6|7|8|9|⊛| #

Factory setting:	Memory empty
Maximum phone number length:	32 digits

⊛+# Speed dial button ⊛+0
The selected speed dialling memory will be deleted.

Setting the call procedure

⊛+# 50 { Call procedure } ⊛+0
Call procedure:= ||1|2|3|4|5
1 Tone dialling procedure: Tone as long as button is pressed down
2 Tone dialling procedure: Tone length 70 ms
3 Tone dialling procedure: Tone length 90 ms
4 Impulse dialling procedure: Impulse/Pause ratio 1.5:1
5 Impulse dialling procedure: Impulse/Pause ratio 2:1

Factory setting: 3

Storing or deleting a trunk access code

⊛+# 60 { Trunk access code } ⊛+0
Trunk access code:= 0|1|2|3|4|5|6|7|8|9|⊛|#

Factory setting:	no trunk access code
Maximum length of trunk access code:	5 digits

⊛+# 60 ⊛+0

The trunk access code will be deleted.

Setting the length of pause after dialling a trunk access code

⊛+# 64 { Trunk access code pause } ⊛+0
Trunk access code pause:= 1|2|3|4|5
1 1 s
2 2 s
3 3 s
4 4 s
5 5 s

Factory setting: 3

Setting the duration of a loop current interruption (flash time) when pushing the second call button ®

⊛+# 65 { Flash time } ⊛+0
Flash time:= 1|2|3
1 80 ms
2 120 ms
3 600 ms

Factory setting: 2

Activating/deactivating the change lock

⊛+# 70 PIN { change lock } ⊛+0
Change lock:= 0|1
0 Change lock deactivated, all settings can be modified
1 Change lock activated, settings are locked

Factory setting: 0

Setting the PIN number

⊛+# 79 PIN { new PIN } { new PIN } ⊛+0
PIN:=○○○○
New PIN:= 0|1|2|3|4|5|6|7|8|9|⊛|#

Factory setting:	0000
PIN length:	always 4 digits

If you modify the PIN number, be careful not to forget the PIN you have set. Forgetting the PIN number is similar to losing a key. If you forgot the PIN number, please contact our technical support service.

Technical support service in Germany, Mülheim an der Ruhr:

Phone number	0208 82 68 0
Fax	0208 82 68 286
E-mail	info@fhf.de

Please use the country code if calling from outside Germany:

Phone number	+49 208 82 68 0
Fax	+49 208 82 68 286

Activating/deactivating the external speaker

⊛+# 40 { ext. speaker } ⊛+0
Ext. speaker:= 0|1
0 External speaker deactivated
1 External speaker activated

Factory setting: 0

Restoring factory settings

⊛+# 90 PIN ⊛+0
PIN:=OOOO

Setting the procedure when disconnecting the headset

⊛+# 28 { Optional headset } ⊛+0
Optional headset:= 0|1
0 Disconnect (hang up) if the headset is disconnected in case of headset mode activated.
1 Maintain the connection if the headset is disconnected in case of headset mode activated.

Factory settings

The device is set for general conditions of use to ensure that it can be used immediately after connecting it.
These preliminary settings can be modified according to your personal requirements and connection conditions in the configuration settings.

The following preliminary settings are included in the factory settings of the device:

• Ring tone volume	7 (maximum)
• Ring tone tune	0
• Speaker volume	1 (normal speaker volume)
• Speaker volume for open listening	5
• Speaker volume for hands-free operation	5
• Headset volume	3
• Redialling	deleted
• Speed dialling memory	deleted
• Call procedure:	tone dialling with 90 ms tone length
• Trunk access code	deleted
• Dialling pause after trunk access code	3 seconds
• Flash duration	120 ms
• Modification lock	deactivated
• PIN	0000
• External speaker:	deactivated
• Optional headset	0

Attention!

The information listed on pages 14 and 15 in the "explosion protection - parameters" section must be observed to comply with the explosion protection.

Connection data	
Supply voltage	24 V_{DC} up to 66 V_{DC}
Supply current	15 mA_{DC} up to 100 mA_{DC}
Ringing alternating current	24 V_{AC} up to 90 V_{AC} (at 21...54 Hz ring tone frequency 30 V_{AC} up to 90 V_{AC} (at 16.6...54 Hz ring tone frequency
Tone call impedance	Over 6.0 kΩ at 25 Hz and 24...90 V_{AC} Over 4.0 kΩ at 50 Hz and 24...90 V_{AC}
Second call button	Flash length can be selected from 80 ms, 120 ms and 600 ms
Dialling procedure	Tone dialling and impulse dialling Tone dialling according to ITU-T Q.23. Impulse dialling at an impulse to pause ratio of 1.5:1 or 2:1.
Trunk access code	One trunk access code, maximum 5 digits
Dial pause after trunk access code	1 s up to 5 s
W conductor	For connecting an external secondary sounder
External speaker	Clamps for connecting an external speaker (optional accessory)
Headset	Clamps for connecting a headset (optional accessory) Note: You can connect a headset or a second headset, but not both at the same time!
Second headset	Clamps for connecting a second headset (optional accessory) Note: You can connect a headset or a second headset, but not both at the same time!
Connection terminals	Up to 4 mm^2 rigid Up to 2.5 mm^2 flexible
Housing	
Material	Fibreglass reinforced polyester
Height x Width x Depth	Approx. 260 mm x 228 mm x 135 mm
Weight	Approx. 5,5 kg

Keypad	- Metal keypad protected against icing - 21 keys with the appropriate inscription
Operating position	Vertical wall-mounted. The device can be installed only on a level surface.
Handset	
Support hook protection	Integrated, adjustable support hook protection
Handset cord	Steel-reinforced armoured cord made of stainless steel
Earphone	Dynamic earphone with a stray field coil for the inductive connection of hearing aid devices
Mouthpiece	Electret microphone
Noise cancellation	Over 3 dB with the integrated speaking funnel
Environmental conditions	
Protection rating:	IP66 according to EN60529
Protection against mechanical wear:	Protection rating IK09 according to EN50102
Operating temperature:	-25°C to +60°C
Storage temperature:	-25°C to +70°C according to IEC60721
Other characteristics	
Disconnect button	Separate button
Hook switch	Reed contact without a mechanical hook
Supply	- From the analogue phone network - No additional power supply required
Call-charge impulse lock	- Electrical damping for 12 kHz and 16 kHz at the earphone of over 30 dBr related to 1 kHz - Impedance (at the phone connections A, B): approx. 13 kΩ (1 V_{eff} ; 12 kHz ; idle state) approx. 4 kΩ (10 V_{eff} ; 12 kHz ; idle state) approx. 2.5 kΩ (1 V_{eff} ; 12 kHz ; conversation state) approx. 2.3 kΩ (10 V_{eff} ; 12 kHz ; conversation state) approx. 11 kΩ (1 V_{eff} ; 16 kHz ; idle state) approx. 4 kΩ (10 V_{eff} ; 16 kHz ; idle state) approx. 2.5 kΩ (1 V_{eff} ; 16 kHz ; conversation state) approx. 2.3 kΩ (10 V_{eff} ; 16 kHz ; conversation state)
Ring tone volume	- approx. 90 dB(A) in 1 m distance at 50 V_{AC} / 50 Hz In the deliver state setting. (The maximum volume depends also on the selected tune and the feedingconditions.) - 6 levels can be selected including muted (The ring tone volume is reduced by approx. 12 dB(A) when the optional external speaker is turned on.)

Ring tone tunes	10 tunes can be selected
Speaker volume for open listening	- maximum volume is approx. 68 dB(A) at 1 m distance - 7 levels can be selected permanently or temporarily (The speaker volume is reduced if the optional external speaker is connected.)
Speaker volume for hands-free operation	-Function with ambient noises up to approx. 68 dB(A). (With higher sound levels, it is no longer to understand the speaker in speaker phone mode). - maximum volume is approx. 68 dB(A) at 1 m distance - 7 levels can be selected permanently or temporarily (The speaker volume is reduced if the optional external speaker is connected.)
Handset volume	- Handset volume between 0 db and +12 db - adjustable in 7 levels permanently or temporarily
Headset volume	- adjustable in 7 levels permanently or temporarily
Signal tones	- Signal tone in case of successful or incorrect configuration, when requesting the PIN number and changes of data stored in the memory

Directives and standards	
Conformity with the following directives and standards:	- ATEX-directive 94/9/EG - R&TTE Directive 1999/5/EC - Low Voltage Directive 73/23/EEC - EMC Directive RL89/336/EC for residential and Industrial areas - ETSI TBR 38: May 1998 - ETSI TS103021-1 (2004-05) - ETSI TS103021-2 (2004-11) - ETSI TS103021-3 (2003-08)

Service

You acquired a modern product manufactured by ***FHF*** which was subject to a strict quality assurance process. If you have any questions concerning the phone, or in the event of a fault, even after the warranty period, please contact ***FHF*** (see page 5). Please keep the type number and item number at hand (you can find these code numbers on the rating plate).

Care and Maintenance

The telephone is maintenance free. However, if the phone is used in areas with heavy pollution with dust, grease, oil etc. it should be cleaned regularly. Wipe the handset and the device with a damp cleaning cloth. ***Attention!*** Never use sharp objects for cleaning.

Disposal

The device is disposed of as electronic waste. Plastic, metal and electronic parts are to be disposed of separately upon disassembly.
The requirements concerning disposal of the country of application are to be observed.

Warnings and safety instructions

This is an explosion protected, weatherproof phone specifically developed for use in rough industrial conditions. Please observe the following warnings and safety instructions:

1. The phone can only be connected and operated with the specified voltage. The connecting wire shall be routed not to cause a tripping hazard.
2. The phone may only be operated under the above-mentioned environmental conditions (see chapter "Technical data"). Adverse environmental conditions, for example environmental temperature too high or too low, are not permitted because they can cause the breakdown of electronic components.
3. Care must be taken to ensure that the phone and the connecting wires etc. are not damaged. Do not use the phone if damaged.
4. The circuits of the telephone may not be grounded.
5. For the operation of the phone, legal and industrial requirements, regulations for the prevention of accidents and electrical specifications must be observed.
6. Use only original parts for repair, which were replaced professionally. Other replacement parts can cause damage, negate the explosion protection and it will void the warranty.
7. Requirements on the position of the device must be met. The device can only be mounted vertically on a flat area.
8. Power frequency magnetic fields can have a slight influence on the sound quality. Please take care to select the correct place of installation in this case.

9. The explosion protection type of the telephone is:

II 2G Ex e mb [ib] IIC T5 Gb	Ex e mb [ib] IIC T5 Gb
II 2D Ex tb [ib] IIIC T100°C Db	Ex tb] IIIC T100°C Db
-25°C ≤ T_a ≤ 60°C	-25°C ≤ T_a ≤ 60°C
II 2G Ex e mb [ib] IIC T6 Gb	Ex e mb [ib] IIC T6 Gb
II 2D Ex tb [ib] IIIC T80°C Db	Ex tb [ib] IIIC T80°C Db
-25°C ≤ T_a ≤ 40°C	-25°C ≤ T_a ≤ 40°C
DMT 02 ATEX E 183	IECEx BVS 11.0033

10. The telephone must have zero potential to open the device. The waiting time before opening the telephone after de-energizing the voltage is at least 2 minutes!
11. Dust must not enter the device while it is open!
12. The cover seal and the collar of the lower part of the housing required for the tightness of the housing cannot be damaged during assembly or disassembly.
13. During the commissioning of the operating equipment for use in dust, the commissioned parts should be subject to a new piece inspection.
14. The speaking funnel from the receiver consists of non-conductive plastic. It may charge up dangerously with high air speed. Thus, it is forbidden to clean the speaking funnel with compressed air.
15. A rust film can form in case of a high concentration of sulphurous gases in the air.
16. We reserve the right to modify the product for its technical development without preliminary notice.

CE marking

The ExResistTel MB phone complies with the following directives:

R&TTE Directive 1999/5/EC
Low Voltage Directive 2006/95/EC
ATEX Directive 94/9/EG
EMC Directive 2004/108/EC
RoHS Directive 2011/65/EC

The CE marking is proof of conformity with the above specified directives.

EG-KONFORMITÄTSERKLÄRUNG
EC DECLARATION OF CONFORMITY
DECLARATION CE DE CONFORMITE
DECLARACIÓN DE CONFORMIDAD CE

Bezeichnung des Erzeugnisses: / Designation of Product:
Désignation du produit : / Designación del producto:

- **Robustes ExII-Telefon**
- **Ruggedized ExII-telephone**
- **ExII-téléphone robuste antidéflagrant**
- **Robusto teléfono para ExII**

Gerätetyp oder Typenbezeichnung der Einzelkomponenten:
Equipment Type or Type Designation of Individual Component:
Modèle d'appareil ou désignation de modèle des composants :
Tipo de aparato o designación del tipo de los componentes individuales:

- **ExResistTel**

Einschlägige EG-Richtlinie(n): / Relevant EC Directive(s):
Directive(s) CE en vigueur : / Directiva(s) CE pertinente(s):

94/9/EG: Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen
94/9/EC: Equipment and protective systems intended for use in potentially explosive atmospheres
94/9/CE: Appareils et systèmes de protection destinés à être utilisés en atmosphères explosibles
94/9/CE: Aparatos y sistemas de protección para uso en atmósferas potencialmente explosivas

Angewandte harmonisierte Normen, insbesondere:
The following harmonised standards have been applied:
Normes harmonisées appliquées, notamment :
Normas armonizadas aplicadas, especialmente:

EN 60079-0:2012
EN 60079-7:2007
EN 60079-11:2012
EN 60079-18:2009
EN 60079-31:2009

EG-Baumusterprüfbescheinigung: / EC-Type Examination Certificate:
Attestation d'examen CE de type : / Certificado de examen CE:

DMT 02 ATEX E 183

Benannte Stelle für die Bescheinigung:
Notified body of the certificate:
Organisme notifié de l'attestation:
Organismo Certificado de examen:

Kennnummer:
Inspection number: /
Numéro d'identification : /
Número de examen:

0158

- Hiermit erklären wir, dass das Erzeugnis aufgrund seiner Konzipierung und Bauart sowie in der von uns in Verkehr gebrachten Ausführung den einschlägigen grundlegenden Sicherheits- und Gesundheitsanforderungen der(n) genannten EG-Richtlinie(n) entspricht.
  Bei einer nicht mit uns abgestimmten Änderung des Erzeugnisses verliert diese Erklärung ihre Gültigkeit.
- We herewith declare that the product, based on its development and type as well as on the specific design we have brought into circulation, conforms to the relevant basic safety and health requirements of the mentioned EC Directive(s).
  This declaration shall become invalid if any modification we have not authorised is made to the product.
- Nous attestons, par le présent document, que le produit a été conçu et fabriqué, quant au modèle mis en circulation par nos services, conformément aux exigences fondamentales de sécurité et de santé en vigueur de la ou des directives CE citées.
  En cas de modification du produit non convenue avec nos services, la présente déclaration perd sa validité.
- Por la presente declaramos que el producto satisface por su diseño y tipo constructivo así como en la versión comercializada por nosotros los requisitos de seguridad y salud fundamentales y pertinentes de la(s) directiva(s) CE indicada(s).
  En caso de una modificación del producto no acordada con nosotros, la presente declaración pierde su validez.

Diese Erklärung wird verantwortlich für den Hersteller / Importeur · This declaration is made on behalf of the manufacturer / importer · La présente déclaration, dont le fabricant / importateur ci-après assume la responsabilité · Esta declaración es formulada en forma responsable para el fabricante / importador

FHF Funke + Huster Fernsig GmbH
Gewerbeallee 15-19
45478 Mülheim an der Ruhr
Deutschland · Germany · Allemagne · Alemania

abgegeben durch · by the authorised signatory · est déposée par · por

Schwengers, Jörg

Name, Vorname / Surname, forename / nom, prénom / apellido y nombre

Geschäftsführung / Managing Director / Direction / Gerencia

Stellung im Betrieb des Herstellers / Position in manufacturer's company / fonction dans l'entreprise du fabricant / puesto en la empresa del fabricante

Mülheim an der Ruhr

Ort / Place / ville / Lugar

19.04.13

Datum / Date / date / Fecha

Rechtsgültige Unterschrift / Legally binding signature / signature légale / Firma válida

Subject to alterations or errors

FHF Funke + Huster Fernsig GmbH

Gewerbeallee 15-19 · D-45478 Mülheim an der Ruhr
Phone +49 / 208 / 82 68-0 · Fax +49 / 208 / 82 68-286
http://www.fhf.de · e-mail: info@fhf.de